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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/601,374	09/11/2000	Dietrich Haarer	SPM-301-A	2294

7590 07/03/2002
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EXAMINER

CROSS, LATOYA I

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 07/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MFE

Office Action Summary	Application No.	Applicant(s)	
	09/601,374	HAARER ET AL.	
	Examiner	Art Unit	
	LaToya I. Cross	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to because the submitted drawings are of poor quality making it difficult to understand the invention of claims 4 and 5. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-24 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for dinitrobenzyl pyridine, does not reasonably provide enablement for the broad group of photochromic dyes or the structures claimed in claims 4-6. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Claims 1-24 contain recitations to a photochromic dye and claims 4-6 contain a chemical structure for the claimed reversible indicator. The compound has several R groups for which various groups may be substituted. The specification, however, teaches only how to make dinitrobenzyl pyridine and gives no guidance as to how the other myriad of claimed compounds

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may be made. Applicants' are not required to describe each and every specific variation of the claimed compound; however, the disclosure must be commensurate in scope with what is claimed. Thus, Applicant's claimed invention is broader than enabled.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In claim 14 the phrase "preferably below 430nm", which is improper.

7. Claims 1-24 all recite, "characterized in that", which is unconventional claim language. Applicants should consider using "wherein" and/or "comprising" where appropriate.

8. Regarding claims 4-6. Claims 4 and 6 also recite compounds which are not in the claims., the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

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9. Claims 21, 22 and 24 recite the limitation "the irreversible indicator" and "the filter" in the respective claims. There is insufficient antecedent basis for these limitations in the claim.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-3, 7, 9, 11, 16-19 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by W096/06643 to Kanakkanatt,

12. Kanakkanatt '643 teaches packaging materials containing dyes to be used to indicate possible spoilage. At page 2, lines 18-21, Kanakkanatt '643 teaches incorporation of photochromic dyes into polymeric materials (matrix) as recited in claim 1. When the photochromic dye is exposed to specific stimuli, such as UV light, a color change in the dye results. At page 3, lines 9-22, Kanakkanatt '643 teaches using the dyes in packaging materials, as recited in claim 2. At page 5, lines 29-38, the reference teaches that the color change that results may be reversible where the matrix is to be used again. Regarding claims 16-19, Kanakkanatt '632 teaches that the dye materials may be affixed to (as in a substrate) or incorporated into the packaging materials or may be included as a coating (page 6, lines 31-37). With respect to claims 3, 7 and 9, Kanakkanatt '643 provides examples 1-5, wherein indicator dyes are incorporated into polymeric materials and due to the interactions of the substituent group of the dye, a reversible color change forms. These reactions are a result of transferring

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of different molecules upon contact with UV light. Therefore, for the reasons set forth above, Applicants' claimed invention is deemed to be anticipated by Kanakkanatt '643.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. Claims 4-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanakkanatt '643 in view of Journal of Physical Chemistry article "Photochromism and Thermochromism driven by Intramolecular Proton Transfer in Dinitrobenzyl pyridine Compounds" authored by Corval et al.

The disclosure of Kanakkanatt '643 is given in detail above.

Kanakkanatt '643 fails to disclose photochromic dyes having the formula of claims 4 and 5.

Corval et al teach 2-(2, 4-dinitrobenzyl) pyridine (having the formula of claim 4 and shown in the reference as structure 1) and 2-(2, 4-dinitrobenzyl)- 1, 10-phenanthroline (having the formula of claim 5 and shown in the reference as structure 6). The article teaches that these

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compounds undergo a photochromic process from a photon transfer reaction. It would have been obvious to one of ordinary skill in the art to issue these compounds in the packaging materials of Kanakkanatt '643 due to their unique ability to change visually in response to radiation light. In using such compounds, an effective indicator of spoilage in food products can be provided.

Therefore, for the reasons set forth above, Applicants' claimed invention is deemed to be obvious over Kanakkanatt '643 in view of Corval et al.

16. Claims 10, 12-15, 20-22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanakkanatt '643 in view of US Patent 3,999,946 to Patel et al.

The disclosure of Kanakkanatt '643 is given above.

Kanakkanatt '643 does not disclose the additional use of a non-reversible indicator.

Patel et al '946 teach indicator compositions to be used in packaging materials to determine whether perishable items have been exposed to undesirable time – temperature history. Patel et al '946 use indicator dyes whose color change is irreversible, as recited in claim 12. Regarding claims 13 and 14 and 22. Patel et al '946 teach using a filter material with the indicator to eliminate undesirable photo-induced reactions (col. 8, lines 5-8). At col. 12, lines 7-9, Patel et al '946 use a reference chart to compare the resulting color, as in claims 15, 20 and 24.

It would have been obvious to one of ordinary skill in the art to use both a reversible indicator dye and an irreversible indicator dye because use of such would allow instant indication of undesirable time temperature conditions and simultaneously serve as a recording device to show a history of the time temperature conditions.

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Therefore, for the reasons set forth above, Applicants' invention is deemed to obvious, in view of Kanakkanatt '643 and Patel et al '946.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LaToya I. Cross whose telephone number is 703-305-7360. The examiner can normally be reached on Monday-Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 703-308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

LIC
June 30, 2002


Jill Warden
Supervisory Patent Examiner
Technology Center 1700